ST. MARYS RIVER

MOVING FORWARD

Summary of the St. Marys River RAP Stage 2 Report

Canada

Ontario

INTRODUCTION

The St. Marys Remedial Action Plan Stage 2 Report contains detailed descriptions of over 60 recommended remedial actions which address environmental degradation in the St. Marys River Area of Concern. These recommended actions fall into four categories: point sources of pollution, non-point sources of pollution, flora and fauna, and public involvement. The Report outlines delisting criteria for each impaired beneficial use and ultimately the AOC itself. The process for revising and refining these criteria is also outlined.

This brochure is a summary of the St. Marys Remedial Action Plan Stage 2 Report. It features a list of recommended remedial actions, and it describes the RAP process and notable achievements as well. To obtain more detailed information about the St. Marys Remedial Action Plan or a full copy of the Stage 2 Report, please contact one of the people listed at the end of this document.

THE ST. MARYS RIVER REMEDIAL ACTION PLAN

The St. Marys River is an international waterway located in northern Ontario between the communities of Sault Ste. Marie, Ontario and Sault Ste. Marie, Michigan. It is the only outlet of Lake Superior, and as such it is the main route for marine traffic on the Great Lakes-St. Lawrence Seaway between Lakes Superior and Huron. Major industries in the area include steel making, paper making, commercial fishing and tourism.

The St. Marys River was originally identified as an Area of Concern (AOC) in 1985, as a result of the following problems:

- Pollution from identifiable sources such as industrial facilities or Water Pollution Control Plants
- Pollution from diffuse sources such as sediment, air, water or land
- Changes in fish and wildlife populations

In 1998, Environment Canada, the Ontario Ministry of the Environment, the US Environmental Protection Agency and the Michigan Department of Environmental Quality renewed their intentions to resolve these problems by signing a Letter of Commitment to ecological restoration of their shared Areas of Concern. This agreement identified Environment Canada and the Ontario Ministry of the Environment to lead restoration and protection activities in the St. Marys River AOC.

During the first stage of the remedial action planning process, experts from all four agencies identified the sources and magnitudes of the environmental problems in the St. Marys River AOC, and shared this information with the public through a Binational Public Advisory Committee (BPAC). During this initial stage, it was determined that nine of the fourteen beneficial uses were impaired as a result of the problems listed above. These nine uses, impaired not only from the human perspective but also from that of the local fish and wildlife, are:

- Restrictions on fish and wildlife consumption
- Unhealthy fish and wildlife populations
- Fish tumours and other deformities
- Unhealthy populations of bottom-dwelling organisms
- Restrictions on dredging
- Undesirable algae due to excess nutrients in the water
- Beach closures
- Poor aesthetics
- Loss of fish and wildlife habitat

During the second stage of the process, the BPAC developed a vision of the future which is articulated in a list of Water Use Goals. Then, with the assistance of agency experts, the Stage 2 Remedial Action Plan Report was developed which includes recommended actions to restore each of the impaired beneficial uses and considers the Water Use Goals. These recommended actions fall into four categories: flora and fauna, education and reporting, shorelines and sediment, and water and air quality .

Now that the St. Marys Stage 2 RAP Report is complete, the new focus will be implementation of these important recommendations and monitoring progress towards restoring impaired beneficial uses in the AOC.

Cover Photo: U.S. Army Corps of Engineers, Detroit Office.

WHAT IS A REMEDIAL ACTION PLAN?

In 1978, Canada and the United States entered into an international treaty called the Great Lakes Water Quality Agreement (GLWQA) in order to restore, protect and maintain the environmental quality of the Great Lakes Ecosystem. In 1987, the GLWQA was revised to include an Annex to address Areas of Concern (AOCs), locations where the environment is especially degraded. The Annex describes Remedial Action Plans (RAPs) whose aim is to protect and restore these degraded areas. Under the Great Lakes Water Quality Agreement, a RAP is required for each Area of Concern to encourage an "ecosystem approach" to improve water quality at these locations so that the environment is no longer degraded. The Great Lakes Water Quality Agreement requires that each RAP produce a report after each of three stages:

Stage 1: AOC Assessment and Identification of Beneficial Use Impairments
Stage 2: Selection and Implementation of Appropriate Remedial Actions and Selection of Appropriate Delisting Targets
Stage 3: Confirmation that Remedial Actions have restored Beneficial Uses and Delisting Targets have been met

Currently there are 41 Areas of Concern in the Great Lakes Basin that have ongoing RAPs. Five, including St. Marys River, are shared between Canada and the United States. Regardless of their location, the general goal of all RAPs is to restore ecosystem health by achieving the Delisting Targets for the Area of Concern. When this occurs, the RAP has been successful and the AOC can be delisted from the program. Currently only two AOCs have been delisted: Collingwood Harbour and Severn Sound, in Ontario, Canada.

PUBLIC INVOLVEMENT

Since the St. Marys River is an international waterway, public involvement is an international effort. The goal of public involvement is to make the remedial action plan accountable to the opinions and needs of the local community. Headed by the Binational Public Advisory Committee (BPAC), a number of community workshops have been held to increase awareness of the St. Marys River RAP, and to obtain public opinion and support for restoration from citizens and industry on both sides of the river. After several public workshops and meetings with local stakeholders, the BPAC decided on the Water Use Goals for the remediation of the St. Marys River in December 1992. These goals have been adopted as the ideal vision of the St. Marys River once the over 60 recommended remedial actions have been successfully completed.

Public involvement and input from BPAC has been an important part of the St. Marys River RAP process. BPAC supports the goals and objectives laid out in the RAP Stage 2 Report and looks forward to their implementation. The BPAC has established an office and library at Lake Superior State University in Michigan in order to provide better information access to local citizens on both sides of the border.

Friends of the St. Marys River, a Canadian non-profit group, will be asked to assist with implementation of the Stage 2 recommendations, especially those related to remedial work, education, promotion and reporting.

PROJECT PARTNERS

The following government agencies work together on the St. Marys River Remedial Action Plan:

- Environment Canada (co-lead)
- Ontario Ministry of the Environment (co-lead)
- United States Environmental Protection Agency
- Michigan Department of Environmental Quality

Many other groups, organizations and individuals from the St. Marys River community and beyond have also contributed to the St. Marys River Remedial Action Plan.

SEDIMENT MANAGEMENT PROGRAM

The Sediment Management Program is an important component of the St. Marys River RAP. The sediment, or riverbottom soils, are contaminated with excess nutrients, heavy metals, toxic organic chemicals and oil and grease. Some of these toxins are ingested by bottom-dwelling organisms that are eaten by fish, and thus the fish become exposed to toxins as well. Furthermore, the toxins and contaminated sediment can be mixed into the water of the St. Marys River, which may pose a risk to plants, animals and humans alike, and the excess nutrients cause unpleasant algal blooms. The contaminated sediment and its effects on the ecosystem could be responsible for many of the Beneficial Use Impairments identified in Stage One of the RAP. Therefore, a major portion of Stage Two of the RAP is the Sediment Management Program that aims to assess and manage the contaminated sediments of the St. Marys River.

The major goals of the St. Marys River Sediment Management Program are:

1. Describe and assess each zone of contaminated sediment in the river
2. Develop a consistent, science-based, community supported method for identifying remediation options for each zone if necessary
3. Identify and control all major sources of toxins (excess nutrients, heavy metals, toxic organic chemicals, oil and grease) to prevent further sediment contamination
4. Monitor the water and sediment quality near major sources of toxins to ensure no further sediment contamination occurs
5. Monitor and control the mixing of water and contaminated sediment during remediation activities where required to ensure water quality is maintained
6. Monitor and control the input of toxins from the air (e.g. factory smokestack emissions) into the water and sediment of the St. Marys River
7. Conduct long-term monitoring of sediment quality to ensure management is effective

FUTURE PLANS

The remediation of the St. Marys River Area of Concern has only just begun. In order to restore proper ecological function and sustainable human use of the river, much more restoration activity is necessary. Some of the projects currently planned , which stem from the over 60 recommendations in the Stage 2 Report, include:

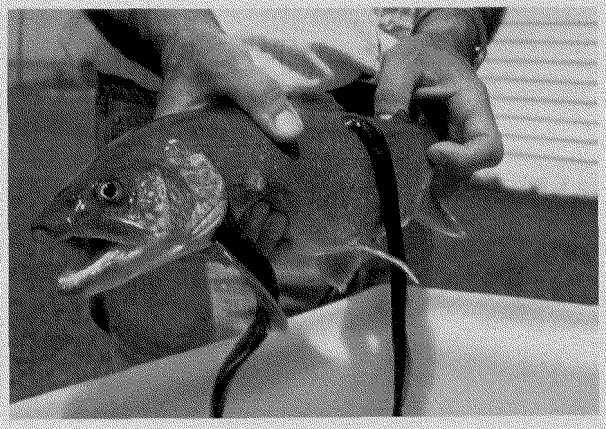
- Elimination of phosphorus, bacteria, trace organic chemicals, heavy metals and oil and grease from all wastewater discharges
- Developing a contaminated sediment management program which will assess and implement any necessary remediation measures and associated monitoring
- Continuation of sea lamprey control efforts
- Ecological restoration of the Algoma Slag Dump shoreline to improve aesthetics
- Various ecological restoration projects to improve habitat and ecosystem health in the main channel and tributaries of the St. Mary's River.

Each of these projects will be conducted in conjunction with ongoing monitoring of the water quality, sediment contamination, fish, birds and wildlife in the St. Marys River.

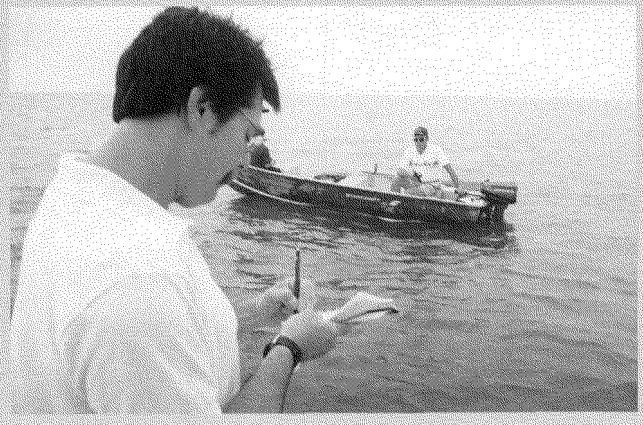
RECOMMENDED REMEDIAL ACTIONS FOR THE ST. MARYS RIVER

FLORA & FAUNA

- Assist the recovery of the Bar River walleye stock by reducing the effects of land use practices upstream of historic spawning grounds
- Implement the Watershed Development Plan for Bennett and West Davignon Creeks
- Create a Watershed Development Plan for East Davignon and Fort Creeks
- Reduce sediment inputs from erosion in the Munuscong River and Bay
- Complete a characterization and feasibility study for waste removal in Mission Creek
- Remediation of rapids habitat and associated wetlands to enhance fish and wildlife populations
- Develop a ten year fisheries assessment program for the St. Marys River
- Monitor water quantity
- Evaluate the influence of water levels on fish reproduction and population levels, and determine minimum water levels and flow rates needed for successful reproduction
- Identify causes of fish tumours and other deformities that originate within the AOC
- Continue support for sea lamprey control efforts
- Monitor the Cannelton Industries Site wetland area
- Continue to participate in the Marsh Monitoring Program to provide baseline information on marsh bird and amphibian populations
- Continue the fish harvest survey to measure the number of fish removed by anglers, subsistence and commercial fisheries from the St. Marys River
- Continue fish contaminant monitoring programs that are used to determine fish consumption advisories
- Complete a Canadian Wildlife Service assessment of common and black tern populations for the entire St. Marys River



Control of undesirable exotic species, such as the black sea lamprey pictured above, is essential to improving the health of animal populations in the St. Marys River and accomplishing water quality goals. Photo: U.S. Fish & Wildlife Service.



Long term monitoring of fish populations will be important to measuring the success of the St. Marys River RAP. Angler surveys are just one of many ways that the health and populations of fish can be monitored. Photo: John Cooper.

EDUCATION & REPORTING

- Revitalize public consultation activities in the AOC to generate and sustain community understanding and support of the goals for restoration
- Communicate potential adverse effects of aboriginal lands or water supplies to the local First Nations community by utilizing existing aboriginal outreach programs
- Identify, track and publicize implementation activities within the AOC and their benefits to local residents and industry
- Raise public awareness of environmental health concerns, reduce human exposure to potentially harmful contaminants, and increase public support for remediation
- Publicize the links between economic development of the area and the restoration, enhancement and protection of the natural ecosystem

RECOMMENDED REMEDIAL ACTIONS FOR THE ST. MARYS RIVER

SHORELINES & SEDIMENT

- Develop a multi-agency Sediment Management Program to oversee the planning, remediation and monitoring of sediment quality
- Further characterize several high priority areas of poor sediment quality, including the Slag Dump, the East End Water Pollution Control Plant, the Algoma Slip and Little Lake George
- Complete the St. Marys River Contaminated Sediment Zones Evaluation
- Assess potential health risks to swimmers at Bellevue Marine Park
- Continue studies of bottom-dwelling organisms, toxins and sediment at Bellevue Marine Park
- Identify and control contaminants from the Algoma Slag Dump
- Monitor persistent contaminants from the East End Water Pollution Control Plant and identify other upstream non-point sources of these harmful substances
- Re-sample river sediments to obtain trend information on sediment quality and benthic community status
- Evaluate Algoma Slip sediment quality and implement clean-up as needed
- Control non-point source pollution from agriculture and road crossings
- Stabilize the shoreline of the Algoma Slag Dump to provide habitat for plants
- Conduct aerial monitoring of the Cannelton Industries site to ensure that sediment erosion will not be a concern in the future
- Conduct biological monitoring to ensure fish and wildlife are protected from persistent toxic substances
- Determine disposal options for dredged material following Provincial Sediment Quality Guidelines
- Monitor change and impacts of remedial activities
- Establish a monitoring program for potential dredging and sediment dispersal within navigation channels

An important goal of the St. Marys River RAP is to make the shoreline more aesthetically pleasing, similar to other nearby portions of the Lake Superior shore. Photo: Michigan Sea Grant Extension (Carol Y. Swinehart).

RECOMMENDED REMEDIAL ACTIONS FOR THE ST. MARYS RIVER

WATER & AIR QUALITY

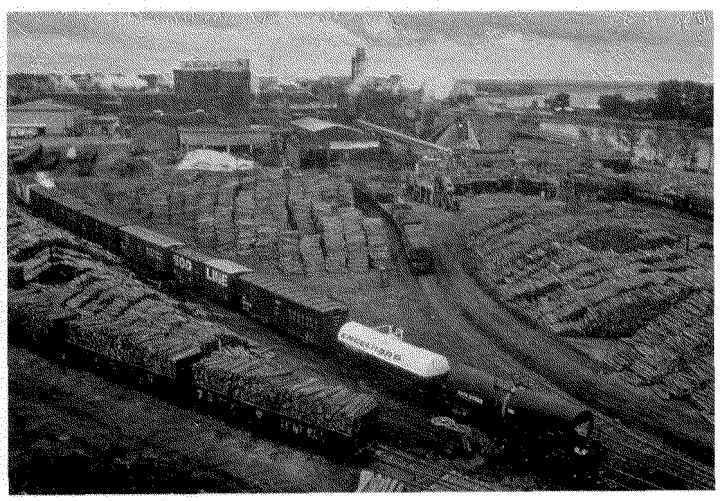
- Virtually eliminate all persistent and bioaccumulative contaminants from industrial and municipal discharges
- Reduce stormwater infiltration at the East End Water Pollution Control Plant and relocate the discharge pipe
- Upgrade the East End Water Pollution Control Plant to secondary treatment
- Design and implement a monitoring system for stormwater
- Address contaminants in stormwater discharge through source control, air quality control, and pollution prevention education
- Examine contaminant discharge from all Water Pollution Control Plants in the AOC
- Continue with Canadian and U.S. regulatory programs for industrial dischargers
- Encourage major point source dischargers to continue process improvements
- Continue work on Combined Sewage Overflows in Sault Ste. Marie, MI
- Limit airborne particulate discharges from Algoma Steel's Dekish operation
- Conduct long term water quality monitoring at the Cannelton Industries site
- Expand the Sault Ste. Marie, Michigan Air Quality Monitoring Project
- Continue with data collection from the air quality monitoring network
- Continue ambient water quality monitoring in the St. Marys River
- Continue the Sault Ste. Marie, Ontario Air Quality Monitoring Program
- Monitor particulate emissions at Algoma's Dekish operation to ensure Algoma Steel successfully reduces airborne particulate emissions
- Monitor receiving water at St. Marys Paper Ltd. to document the response of fish communities to improved effluent quality as mill upgrades and process improvements are implemented
- Identify disposal sites on land or in water that are leaching contaminants into waterways
- Identify and monitor small but widespread sources of pollution such as septic tanks, farms, and roadways
- Assess the health risks to communities and individuals taking their water from the "down-river" areas of the St. Marys River ecosystem
- Assess potential hazards associated with spills from shipping vessels

The St. Marys River RAP will implement recommended projects that will help to resolve water quantity and water quality issues associated with river uses such as recreation, industry (left) and shipping (below). Photo credits: Illinois-Indiana Sea Grant (David Riecks) and U.S. Army Corps of Engineers (Jerry Bielicki).

NOTABLE ACHIEVEMENTS

Government agencies, local communities and industries have already contributed substantially to the St. Marys River RAP through a number of funding initiatives, process improvements and remediation projects. Some of these contributions are:

- Investment of $102 million by Algoma Steel Inc. since 1990 that has helped to reduce input of trace organic chemicals, heavy metals and phosphorus into the St. Marys River
- Investment of $14 million by St. Mary's Paper Ltd. to minimize input of phosphorus and trace organic chemicals into the St. Marys River
- Commitment of $25 million by Sault Ste. Marie, Michigan to eliminate combined sewer overflows in the community and minimize phosphorus and bacterial inputs into the St. Mary's River
- Commitment of $20 million by Sault Ste. Marie, Ontario to improve sewage collection in the community and minimize phosphorus and bacterial inputs into the St. Marys River ¨ Relocation of Trader's Metal to improve aesthetics and add habitat to the St. Marys River waterfront
- Investment of $40 million by the governments of Canada and Ontario in December 2001 to improve the East End sewage treatment plant and sanitary sewer overflows
- Cannelton Industries Inc. has remediated their former tannery site by removing 35,000 tons of waste and contaminated soils, regrading the area and planting native plants to prevent erosion
- Algoma Steel Inc. has become a role model for community involvement by voluntarily signing an Environmental Management Agreement in 2000 with Environment Canada and the Ontario Ministry of the Environment to address their operations on the St. Marys River.
- Formation of the St. Marys River Fisheries Task Group



The support and co-operation of local industries are essential to the success of the St. Marys River RAP. St. Mary's Paper, pictured at left, has spent $14 million to install a wastewater treatment facility that will improve the quality of water entering the St. Marys River from the paper plant. Photo: NOAA, Great Lakes Environmental Research Lab (John Robbins).

CONTACT US!

For more information about the St. Marys River Remedial Action Plan, or to obtain a copy of the complete St. Marys River RAP Stage 2 Report, please contact:

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